Impact of Corporate Governance on Firms' Performance:

A Study on Ethiopian Microfinance Institutions

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Abbreviations

AEMFI	Association of Ethiopian Microfinance Institutions
BGDIV	Board gender diversity
BIND	Board independence
BMEET	Board meeting frequency
BSIZE	Board size
CAR	Capital Adequacy Ratio
CEO	Chieve Executive Officer
DEBR	Debt ratio
DIVIR	Dividend-payout ratio
EPS	Earnings Per Share
FAGE	Age of MFI
FGROW	Growth of MFI
FSIZE	Size of MFI
GMM	Generalized Method on Moments
MFIs	Microfinance Institutions
NBE	National Bank of Ethiopia
NIM	Net Interest Margin
OECD	Organization for Economic Co-operation and Development
ROA	Return on Assets
ROE	Return on Equity
USD	United States Dollar
VIF	Variance Inflating Factor

1. Introduction

The separation of ownership and control in today's modern publicly traded corporations creates a conflict of interest between shareholders and management, which has prompted the development of numerous concepts to minimize the costs of such conflicts (Pavić Kramarić et al., 2018). Corporate governance is one of these suggested techniques concerning the systems, mechanisms, processes, and structures by which companies are directed and controlled (Napier, 1992). In this regard, the issue of corporate governance is an essential component of contemporary business management and has become a common agenda because of the recent worldwide massive corporate collapses, the rapid growth of privatization, and the development of financial sectors (Khiari & Lajmi, 2018). Again, Kyereboah-Coleman (2008) explains that the division of management and ownership in contemporary organizations causes agency problems because agents follow a set of goals that are distinct from the owners, which is one of the fundamental justifications for corporate governance.

The existing literature to date highlights that corporate governance structures have important implications for numerous aspects of firm performance. Theoretically, a well-defined corporate governance structure provides a reasonable foundation for balancing the potential conflicts of interest between the company's various stakeholders, and plays a considerable role in guaranteeing the sustainability and competitiveness of businesses (Banik & Chatterjee, 2021; Doku et al., 2023; Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Besides, a workable governance system will enforce suitable guidelines to acknowledge and safeguard the rights, connections, and interests of every stakeholder in the corporation (Maher & Andersson, 1999). This system build a climate of accountability, fosters the integrity of the market, promoting investment, improves economic stability and growth, provides adequate shareholder protection, and thereby builds investor confidence (Bekele, 2012). Accordingly, strengthening corporate governance practices is a required ingredient for enhancing firm performance and contributing to the country's overall economic growth (Rwegasira, 2000).

In contrast, the absence of a practical corporate governance framework is one of the most obvious reasons for the massive corporate collapse in the 1990s and 2000s worldwide (Al-Matari, 2019); failure in corporate governance structures and enforcement might be a tangible threat to the realization of maximizing firm performance (Farhat, 2014). Again, the absence of

effective corporate governance practices can lead to financial instability, legal challenges, and reputational damage, ultimately jeopardizing the firm's future.

The need for corporate governance in developing countries is more emphasized than in developed countries since both the capital markets and the legal frameworks in developing countries are not well developed and shareholder rights are not fully protected (McGee, 2009). Similarly, Kyereboah-Coleman (2008) reported that recently the issue of corporate governance on the African continent has received much attention because of the occurrence of massive corporate crises around the world in the 1990s and 2000s, as well as weak governance frameworks and poor corporate performance on the continent. More importantly, in Ethiopia publicly held companies have to adhere to the provisions of the Commercial Code of Ethiopia (1960) to operate in the country. In addition, financial institutions have other proclamations, directives, and guidelines issued by the National Bank of Ethiopia (NBE), the regulatory body of financial institutions, that require them to comply with additional requirements. However, the issues of corporate governance in Ethiopia are characterized by the lowest-rated investor protection regime, the absence of formal corporate governance institutions and organized capital markets, and the weakest corporate governance enforcement, which is one of the fundamental reasons for the need for corporate governance in Ethiopia (Tizazu, 2017).

More importantly, given the overall significance of microfinance sector to the country's economy, a practical corporate governance framework in financial institutions worldwide makes it necessary (Gharaibeh, 2023). In the same vein, maintaining appropriate governance structures for financial institutions, including MFIs, is essential for the protection of depositors' money, building the public's confidence in the financial system, and increasing the financial stability and sustainability of their operations (Sang, 2021; Shah & Dutta, 2013). Therefore, this research aims to explain to what extent corporate governance variables (board structures, financial policies, and capital adequacy requirements) can affect the financial performance of microfinance institutions (MFIs) in Ethiopia, a developing country perspective.

2. Microfinance Institutions

MFIs are becoming an essential component of any financial system and used as a method of poverty reduction, particularly in developing nations (Tang et al., 2020). The sector plays a crucial role in mobilizing resources and make loans to customers in the informal sector of the economy, which are often marginalized by mainstream financial service providers (Abebe & Kegne, 2023). In this regard, the NBE 2020/21 annual report revealed a remarkable increase in MFI deposit mobilization and outstanding loans (NBE, 2021). Compared to the 2011/12 annual report, their deposit significantly increased from Birr 5.4 billion to Birr 52.4 billion, while their outstanding loan rose from Birr 9.3 billion to Birr 69.3 billion. Again, according to this report MFIs serve about 5.1 million clients across Ethiopia. This implies that MFIs play a significant role in the country's economic development. Specifically, the issue of corporate governance and how it affect performance, in MFIs is therefore essential and an important element in their effort to promote the well-being of people with low incomes, given the increasing importance of mobilizing considerable resources.

3. Firm Performance

The term "firm performance" refers to how effectively a firm can employ its resources to generate income. Mangena et al. (2012) state that there is considerable debate and no consensus in the literature regarding the best measure to use as a firm performance indicator. However, in corporate governance literature, accounting-based measures such as return on assets (ROA) and return on equity (ROE), market-based measures such as Tobin's Q, are widely used indicators of firm performance (Velliscig et al., 2023).

Since market-based performance indicators are calculated using capital market information, they can be used in the existence of a capital market. These measures reflect the value produced by the company's potential for future profitability and the utilization of current opportunities (Naz et al., 2016). Conversely, accounting-based measures are historical and reflect a more backward-looking emphasis on the company's past performance (Ogunode et al., 2022). In a well-organized market, market-based indicators are less susceptible to management manipulation than accounting-based ones (Hoskisson et al., 1999). This research, therefore, uses accounting-based performance measures of ROA and ROE because market information regarding MFIs is unavailable due to the absence of a capital market in Ethiopia.

4. Literature Review

This section critically reviews the existing empirical studies concerning on the impact of corporate governance on firm performance in Ethiopia as well as in some foreign countries.

4.1. Ethiopian Literature

A study by Wondem and Batra (2019) examined research on the effect of corporate governance on the performance of share companies in Ethiopia from 2011 to 2015. The study employed panel data regression analysis. ROA and ROE were used to measure firm performance. Board of directors' leadership practices, board size, board gender diversity, and board meeting frequency were used as governance mechanisms. The study's findings indicate that board gender diversity enhances company performance (ROA). Moreover, the size of the board of directors, frequency of board meetings, and leadership practices of the board of directors all have a significant negative influence on ROA. The study's findings also revealed that the frequency of board meetings and board gender diversity have a significant positive influence on ROE; however, board size and the leadership techniques of the board of directors have no impact on ROE. The study concluded that corporate governance practices are not progressing; they should be in light of the changing landscape of the corporate business environment because boards of directors elected and working in companies lack true independence and the necessary skills and knowledge. Finally, the researchers suggested that future research consider other governance variables that were not examined in this study.

Moreover, Zelalem et al. (2022) examined the effect of corporate governance on the performance of the Ethiopian insurance industry from a developing economy perspective from 2012 to 2020. ROA and ROE were used as dependent variables to measure insurance performance, while board size, board remuneration, management soundness, capital structure policy, dividend policy, and financial disclosure were used as explanatory variables to express corporate governance. The study employed an explanatory research design and regression analysis. More specifically, the study used a random-effect regression model to explain the proposed estimations. The study concludes that, regardless of the performance measures used, all corporate governance variables have a statistically significant impact on insurance performance. More importantly, the findings showed that the size of the board, board remuneration, management soundness, and financial disclosure have a statistically significant positive link with performance. In contrast, the findings

revealed that debt and dividend payout ratios have a statistically significant negative effect on performance.

A study conducted by Berhe (2023) investigated the nexus between corporate board structures and firm performance, taking data from Ethiopian commercial banks. The study used 126 bank-year observations of a balanced panel data set between 2011 and 2019. The study employed a market-based performance indicator of Tobin's Q as a dependent variable. Conversely, the study used the size, composition, and gender diversity of the board and CEO-duality as independent variables to express corporate board structures. The findings show that the presence of independent and female directors in the boardroom has a statistically significant positive impact on bank performance, as measured by Tobin's Q. Conversely, the findings of the study indicate that the size of the board and CEO duality have negatively associated with bank performance. Finally, the study recommends that future investigations consider other performance indicators such as ROA and ROE as well as other corporate governance attributes to provide a holistic insight.

Recent research carried out by Hordofa (2023) also examined the relationship between the structures of corporate boards and Ethiopian commercial banks' performance from 2010 to 2022. The research used an econometric panel data analysis from a multiple theoretical framework. ROE and net interest margin (NIM) were employed as measures of banks' performance, whereas board size and board gender diversity were employed as explanatory variables to express corporate board structures. The research findings do not find any significant correlation between board size and bank performance, regardless of the firm performance measures used. In contrast, the findings show that board gender diversity has a statistically significant positive correlation with bank performance, as measured by ROE. Overall, Berhe (2023) and Hordofa (2023) recommend that future empirical investigations consider data from other sectors, such as insurance, MFIs, non-financial companies, and cooperative unions.

4.2. Foreign Literature

For member countries of the Organization for Economic Co-operation and Development (OECD), Maher and Andersson (1999) conducted a cross-section study on the effects of corporate governance on corporate performance and economic growth. The study's findings revealed that corporate governance significantly influences the formation and functioning of

stock markets and resource allocation, industrial competitiveness, and the economies of member nations. The study's findings also revealed that corporate governance practices differ by country; one of the most notable variations across countries' corporate governance systems is the degree of ownership and control of firms. Similarly, according to the authors, variances in corporate governance mechanisms are founded on differences in countries' legal, regulatory, and institutional contexts and historical and cultural considerations. Furthermore, the study found that corporate governance structures and their effects differ between countries and between firms and industries.

Kyereboah-Coleman (2007) critically researched the association between corporate governance and business performance from an African viewpoint, using publicly traded companies from Ghana, Nigeria, Kenya, and South Africa. The study employed an agency theory perspective as a theoretical framework. The study's findings show that having a larger board of directors and independent boards improves business value; however, CEO-board chairman duality adversely influences performance. The study also revealed that audit committees' size and meeting frequency positively impact business value, and institutional shareholding sends a positive sign to potential investors, improving firm share value. The research found that the board of directors' independence and gender diversity improved business performance. The study's findings suggest that sector-specific and country-specific factors, such as corporate governance practices, matter to shareholders' value as well as corporate performance.

Research carried out by Ntim (2009) critically investigated the association between corporate governance and South Africa's publicly traded corporations' performance from 2002 to 2006. The study's findings show that the frequency of board meetings, gender diversity of the board of directors, and board committees have no effect on the company's performance (ROA and Tobin's Q). Moreover, the study's findings indicate that board size has a substantial positive impact on Tobin's Q but no impact on ROA. The research again found that the CEO-board chairman duality has a substantial positive influence on ROA; however, no impact on Tobin's Q. Finally, the researcher recommends further studies to investigate how external governance elements influence corporate performance.

Diriba and Basumatary (2019) analyzed the impacts of corporate governance on the performance of leading Indian firms from 2012 to 2016. The study used descriptive and regression analysis methods. ROA was used to measure the firm's performance, while corporate governance indicators were expressed using the chief executive officer, board independence, and board size. As a theoretical framework, this study primarily uses agency and stewardship theories. The findings revealed that the chosen corporate governance measures have no statistically significant influence on the company performance of leading Indian corporations in the sample. Lastly, the researchers believed that the study only considered a few corporate governance variables while not considering other important variables that could affect the company's performance. Likewise, the study considered only five years of data for four companies that have no sense in the panel data model (i.e., impact analysis).

A study investigated by Puni and Anlesinya (2020) on the effect of corporate governance on company performance in developing nations among Listed Ghanian Companies from 2006 to 2018. The study used board composition, board meeting frequency, board committee, shareholder concentration, and CEO-board chairman duality as corporate governance indicators. On the other hand, the study used ROA, EPS, Tobin's Q, and ROE as business performance indicators. Panel data regression analysis was employed in this investigation. The study found that the size of the board of directors, board meeting frequency, and shareholder concentration had a substantial influence on performance. Similarly, the study found that having both insiders and outsiders on a firm's board of directors increased financial performance. The presence of board committees, on the other hand, had a negative influence on business performance, whereas CEO duality had no such effect.

5. Research Gap

The issue of corporate governance has gotten attention and has become a common agenda because of the massive corporate collapses in Asia, Europe, and the USA in the 1990s and 2000s, the rapid growth of privatization, and the development of financial sectors (Atugeba & Acquah-Sam, 2024; Guluma, 2021). More importantly, a thorough examination of considerable literature has highlighted that similar to how a workable corporate governance system improves a firm's performance, a weak corporate governance structures are one of the main reasons quoted for the recent worldwide massive financial crisis (Boshnak et al., 2023; OECD, 2016).

Accordingly, there is no doubt that a number of studies on the impact of corporate governance on firm performance have been investigated and continue to be conducted. In this regard, after thoroughly reviewing existing literature concerning on the issue of interest, the researcher wants to conduct this research because of the following important motivating reasons:

The issues and needs of corporate governance in developing countries give more emphasis than in developed countries since developing countries are characterized by weak corporate governance frameworks and enforcement (Alsahafi, 2017); and regulatory bodies and leaders of the private sector lack sufficient experience in governing market-oriented business sectors with a public constituency (Puni & Anlesinya, 2020). More importantly, the issues of corporate governance in Ethiopia are characterized by the lowest-rated investor protection regime, the absence of formal corporate governance institutions and organized capital markets, and the weakest corporate governance enforcement, which is one of the fundamental reasons for the need for corporate governance in Ethiopia (Tizazu, 2017). Therefore, the current research broadens the present body of knowledge by providing empirical evidence on the issue of interest from developing countries' perspectives, and this highlights the importance of the corporate governance-performance nexus in comprehending and investigating in different contexts.

Moreover, a thorough review of considerable literature regarding the issue under study indicates mixed findings and has not reached the same conclusion. On the one hand, some studies have indicated that a well-defined corporate governance mechanism reduces agency problems, improves stakeholder interest, and in turn enhances firms' performance (Affes & Jarboui, 2023; Baltrunaite et al., 2023; Baysinger & Butler, 1985; Brekumi et al., 2023; Choi et al., 2021; Hermuningsih et al., 2020; Khalid et al., 2019; Maher & Andersson, 1999; Tizazu, 2017). Conversely, some studies have documented that corporate governance mechanisms have adversely affected firm performance (Atugeba & Acquah-Sam, 2024; Bathala & Rao, 1995; Hutchinson, 2002). Moreover, some studies fail to find any relationship between corporate governance mechanisms and firm performance (Makki & Lodhi, 2013; Park & Shin, 2004; Prevost et al., 2002; Singh & Davidson, 2003). As a result, further empirical investigation is required in this context to explain and ascertain the association between variables considered in this research and come up with conclusive results.

In addition, more importantly, to the best of the researcher's knowledge in Ethiopia, prior studies on the relationship between corporate governance attributes and firm performance were conducted by Zelalem et al. (2022), taking data from insurance companies, and by Berhe (2023) and Hordofa (2023), taking data from commercial banks. In the first place, the review of existing empirical literature indicates that almost all previous studies in Ethiopia concerning corporate governance and firm performance have mainly focused on certain board structures as proxies of corporate governance variables, which may fail to provide a comprehensive picture of the effect of corporate governance mechanisms on firm performance (Zidan, 2018). Accordingly, in addition to board structures, the current research considers financial policies (capital structure policy and dividend payout policy) as well as capital adequacy requirements as proxies of corporate governance.

In addition, these studies commonly considered board size among board attributes and exhibit inconsistent findings on it; Zelalem et al. (2022) found that the size of the board and performance have a significant positive correlation, while Berhe (2023) revealed that the size of the board has a significant negative association with performance. However, Hordofa (2023) does not find any significant correlation between board size and performance. Again, the empirical findings of existing studies conducted in the banking and insurance industries cannot necessarily be generalized to the microfinance industry. This is because the legal framework and corporate governance practices vary from country to country as well as across firms and industry sectors (Affes & Jarboui, 2023; Diriba & Basumatary, 2019; Kyereboah-Coleman, 2008). Accordingly, the authors recommend that future empirical investigations consider data from sectors other than banks and insurance, such as MFIs, and non-financial companies. In this regard, the researcher is motivated to address this gap by empirically examining how corporate governance attributes affect firm performance in the context of Ethiopian MFIs.

Again, a theoretical framework is required to explain the nexus between corporate governance and performance attributes. Most of the previous empirical studies regarding the issue had adopted a single theoretical framework, predominantly agency theory, and often reported inconsistent findings (Akram & Abrar Ul Haq, 2022; Jensen & Meckling, 1976; Pucheta-Martínez & Gallego-Álvarez, 2020). In this regard, a systematic literature review conducted by (Nguyen et al., 2020) and Lu et al. (2022) indicated that adopting an integrated multiple

theoretical perspective provides a profound understanding of the complex correlation between corporate governance attributes and firm performance. Therefore, this research has adopted multiple theoretical frameworks to explain and understand the nexus between corporate governance attributes and firm performance. Specifically, this research is grounded in the perspectives of agency, resource dependence, and stewardship theories.

6. Research Questions

Given the above motivations and the limitations of prior studies, this research intends to fill gaps in the corporate governance literature in the context of Ethiopia, a developing country perspective. Therefore, this research aims to examine the relationship between corporate governance and the performance of MFIs to answer the following basic research questions:

1. Do corporate board structures influence the financial performance of MFIs?
2. Does capital structure policy affect the financial performance of MFIs?
3. Does dividend payout policy affect the financial performance of MFIs?
4. Does the capital adequacy requirement influence the financial performance of MFIs?

7. Statement of the Problem

The literature review to date highlights that corporate governance structures have important implications for numerous aspects of firm performance. Accordingly, a number of studies have been conducted on the issue under study. However, to the best of the researcher's knowledge in Ethiopia, just a few research have been undertaken. The review of existing empirical literature shows that almost all previous studies in Ethiopia on the issue of interest have mainly focused on banking and insurance sectors as well as board structures as a proxy for corporate governance. Accordingly, this research aims to fill the gaps and attempts to investigate the impact of board structures, capital structure policy, dividend payout policy, and capital adequacy requirements on the performance of Ethiopian MFIs.

8. Conceptual Framework of the Study

A conceptual framework for this research is developed based on the existing literature review. Figure 1 presents the conceptual framework of the current research.

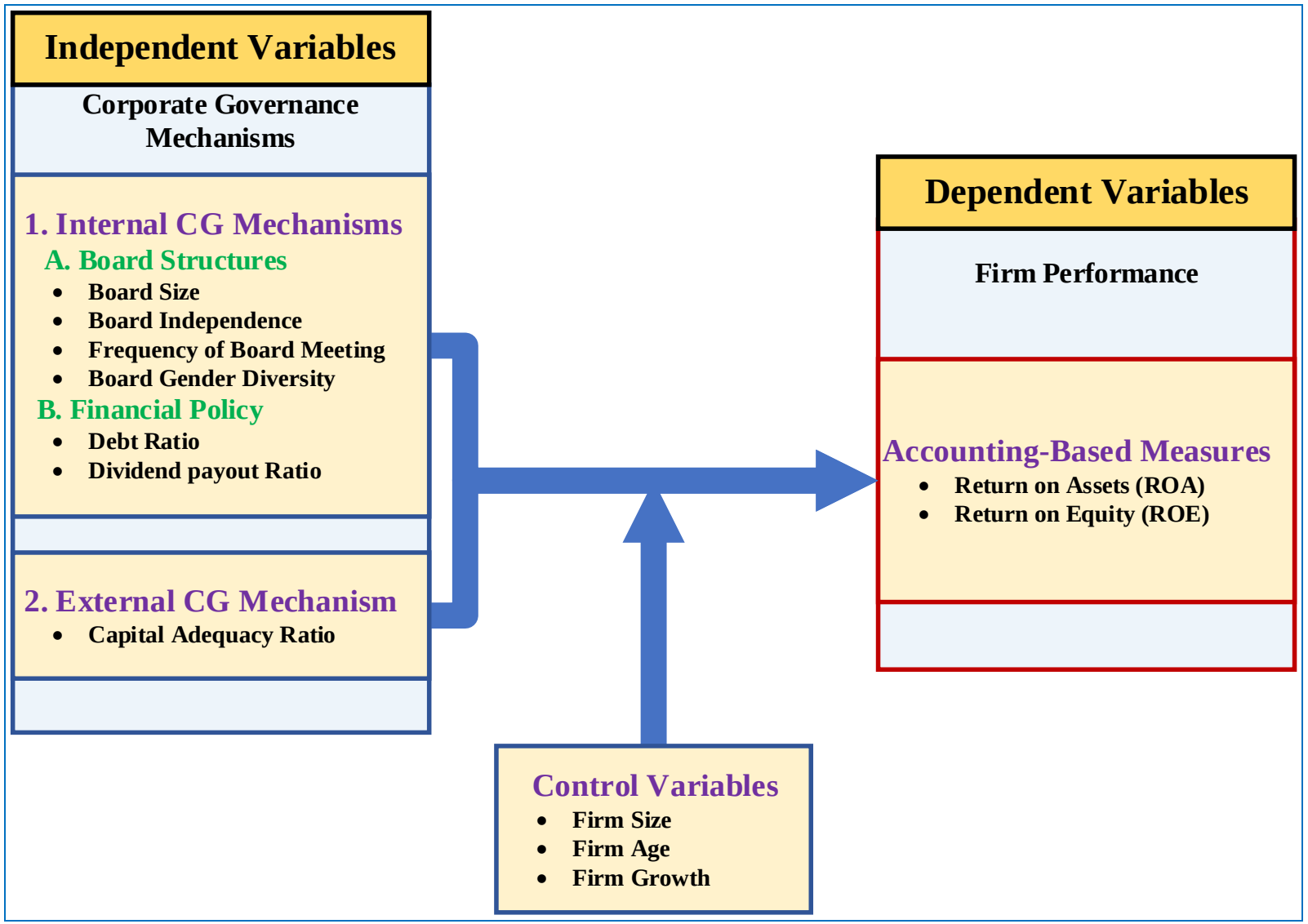

Figure 1: Conceptual Framework: Corporate Governance and Firm Performance

Sources: The author

9. Objectives of the Study

The major objective of this research is to examine the impact of corporate governance mechanisms on firm financial performance using evidence from Ethiopian MFIs from 2011–12 to 2020–21. To meet the major objective, the following specific objectives are drawn:

1. To examine the impact of corporate board structures on MFIs' financial performance.
2. To analyze the impact of capital structure policy on MFIs' financial performance.
3. To investigate the impact of the dividend payout policy on MFIs' financial performance.
4. To study the impact of the capital adequacy ratio on MFIs' financial performance.

10. Hypotheses of the Research

Based on the theoretical frameworks adopted and the existing empirical studies reviewed, the following research hypotheses were formulated in this research:

Hypotheses on corporate board structures and firm performance

Hn_1: There is no significant association between corporate board size and MFIs' performance.

Ha_1: There is a significant positive association between corporate board size and MFIs' performance.

Hn_2: There is no significant association between board independence and MFIs' performance.

Ha_2: There is a significant positive association between board independence and MFIs' performance.

Hn_3: There is no significant association between board meeting frequency and MFIs' performance.

Ha_3: There is a significant positive association between board meeting frequency and MFIs' performance.

Hn_4: There is no significant relationship between corporate board gender diversity and MFIs' performance.

Ha_4: There is a significant positive relationship between corporate board gender diversity and MFIs' performance.

Hypothesis on capital structure policy and firm performance

Hn_5: There is no significant association between the debt ratio and MFIs' performance.

Ha_5: There is a significant positive association between the debt ratio and MFIs' performance.

Hypothesis on dividend payout decisions and firm performance

Hn_6: There is no significant association between the dividend ratio and MFIs' performance.

Ha_6: There is a significant positive association between the dividend ratio and MFIs' performance.

Hypothesis on capital adequacy requirements and firm performance

Hn_7: There is no significant association between the capital adequacy ratio and MFIs' performance.

Ha_7: There is a significant positive association between the capital adequacy ratio and MFIs' performance.

11. Research Methodology

The research adopts the positivism research paradigm school of thought. It is suitable when the researcher intends to use empirical studies and current theory to develop testable hypotheses and when the problem being studied involves an observable social reality (Saunders et al., 2009). Again, positivism research paradigm is appropriate when the variables being studied are quantitative, meant to describe the causal relationship between variables, and meant to draw conclusions about the phenomenon from the sample to the intended population. Accordingly, this research has been adopted positivism research paradigm because the current research aims to determine the causal relationship between corporate governance and firm performance variables, which are objectively measurable (Farhat, 2014).

A deductive research approach has been adopted to achieve the objectives of this research. This is because this approach is widely employed to investigate the causal relationships between variables and when the research aims to test the developed hypotheses. Accordingly, the researcher adopted a deductive approach since this research aims to test the developed hypotheses and draw a conclusion about the relationship between corporate governance and firm performance variables based on the existing theoretical perspective in the Ethiopian context. The research also used a quantitative research design because it aims to investigate the links between quantified variables and subject them to various statistical analyses (Saunders et al., 2009), and is widely employed in corporate governance and firm performance studies (Alsahafi, 2017; Farhat, 2014; Marashdeh, 2014).

In Ethiopia, 39 MFIs were licensed by the NBE at the end of 2020-21. This research uses data from 2011-12 to 2020-21. The period was selected due to data availability and the fact that it relates to a very recent data set. Despite having been in operation for more than ten years, five MFIs were excluded from the study due to missing data. Ten of the 39 MFIs were again excluded from the sample because they had been in operation for less than ten years. Consequently, out of the total population, the remaining 24 MFIs that fulfilled the criteria of having all required data for the study period were selected as a final sample (Appendix II). Corporate governance and firm performance data are based on secondary data collected directly from sampled MFIs annual reports (Appendix I). Similarly, the data regarding control variables were obtained from the MFI's annual reports.

Furthermore, it is important to implement the general assumption needed before regression analysis to create a reliable and unbiased model to guarantee that the estimated parameters have the correct sign (Gujarati, 2004). In this regard, normality, multicollinearity, and endogeneity statistical analysis assumptions are widely employed in corporate governance investigations (Alsahafi, 2017). Accordingly, this research considers the statistical analysis assumptions of normality, multicollinearity, and endogeneity. According to the results multicollinearity, and endogeneity are not the problems of the study as well as the data were normally distributed (Appendix II).

Moreover, this research adopted a panel regression model, which involves pooling observations on a cross-section of 24 MFIs over a period of ten-year from 2011-12 to 2020-21 (a panel dataset of 240 firm-year observations). More importantly, multiple regression models were used to examine the impact of corporate governance on the performance of MFIs in Ethiopia. The models also allow for the inclusion of firm size, firm age and firm growth, among others, as control variables. Again, the research performed the Hausman model specification test to determine which model was the most appropriate for estimation. The Hausman model specification test results indicated that the fixed-effects estimation model was appropriate for this research (Appendix II). Accordingly, this research used a multiple regression, precisely fixed-effects estimation model to examine the relationship between corporate governance mechanisms and firm performance. Given the panel nature of the dataset, the current study's model is proposed as follows:

Model 1:

$ROA_{it} = \alpha + \beta 1\ BSIZE + \beta 2\ BIND + \beta 3\ BMEET + \beta 4\ BGDIV + \beta 5\ DEBR + \beta 6\ DIVIR + \beta 7\ CAR + \beta 8\ FSIZE + \beta 9\ FAGE + \beta 10\ FGROW + \varepsilon it$..... (1)

Model 2:

$ROEit = \alpha + \beta 1\ BSIZE + \beta 2\ BIND + \beta 3\ BMEET + \beta 4\ BGDIV + \beta 5\ DEBR + \beta 6\ DIVIR + \beta 7\ CAR + \beta 8\ FSIZE + \beta 9\ FAGE + \beta 10\ FGROW + \varepsilon it$..... (2)

Where $\mathbf{ROA_{it}}$ and $\boldsymbol{ROE_{it}}$ denote the performance indicators of MFI i in year t, i denotes MFI 1 to MFI 24, and t stands for the period from 2011-12 to 2020-21. β1 to β10 refers to the coefficients of board size, board independence, board meeting frequency, board gender diversity, debt ratio, dividend payout ratio, capital adequacy ratio, firm size, firm age, and firm growth, respectively. α stands for intercept. ε_{it} refers to the random error term.

12. Scope of the Study

In studying the impact of corporate governance on firm performance, several dimensions are considered about the scope of the study, including the issue of corporate governance variables, the measures of firm performance, the geographical coverage of the study, and time coverage. Among the corporate governance variables, the study considers corporate board structures, capital structure policy, dividend payout policy, and capital adequacy requirements. In this research, firms' financial performance measures are limited to accounting-based measures of ROA and ROE. This is because market-based measures of firm financial performance are difficult in Ethiopia due to the absence of a capital market. Geographically, the research is limited to Ethiopia. In addition, the scope of the study is restricted to MFIs licensed by the NBE. Moreover, the study covers the period from 2011-12 to 2020-21.

13. Significance of the Study

Although corporate governance is crucial to enhancing firm performance, the issue of corporate governance and firm performance in developing countries has not received much attention in research. This is particularly true in the context of Ethiopia. This research explains how corporate governance structures influence firm performance in countries characterized by weak corporate governance frameworks and in the absence of organized capital markets, like Ethiopia, a developing country perspective. Besides, this research is the first attempt to explain the impact

of corporate governance on firms' performance using data from MFIs. Accordingly, the research provides an empirical analysis of the impacts of the various corporate governance structures and offers suggestions that regulatory bodies can consider when evaluating and revising corporate governance policies. In addition, theoretically the current research contributes to the body of knowledge within a developing country setting by adopting multiple theoretical frameworks to provide a holistic understanding of the nexus between corporate governance structures and firm performance. Again, the findings will have a practical contribution if corrective actions are taken by the concerned stakeholders, according to the research recommendations, to maximize the performance of firms, particularly MFIs.

14. Organization of the Thesis

This thesis is structured into six chapters as follows:

- Chapter One: Introduction.
- Chapter Two: Corporate Governance Framework in Ethiopia.
- Chapter Three: Literature Review.
- Chapter Four: Research Methodology.
- Chapter Five: Results and Discussions.
- Chapter Six: Observations, Recommendations and Conclusion.

15. Key Findings of the Research

15.1. Descriptive Analysis

This section provides the descriptive statistics of the dependent, independent, and control variables used in this research. The results of the descriptive statistics used in this research for the variables under investigation are presented in Appendix II.

The results of the descriptive statistics indicated that the ROA ranges a minimum of -39.70% to a maximum of 71.70%, with a mean value of 8.30%. The mean ROA of 8.30% implies that the Ethiopian MFIs realized an estimated 8.30 cents for every dollar invested in an asset. The finding also showed that the ROE ranges from a minimum of -68.40% to a maximum of 99.00%, with a mean value of 24.70%. The mean ROE of 24.70% suggests that the sector generates an estimated 24.70 cents for every dollar invested in shareholder equity. Again, the standard deviation 14.70 and 30.00 of ROA and ROE, respectively imply that wide gaps exist in the performance of MFIs.

Moreover, the descriptive statistics indicated that the mean board members are 7, with a range of 5 to 9. The results also indicated that independent directors ranges from a minimum of 66.67% to

a maximum of 100%, with a mean 77.70%. This implies that outside directors make up most MFI boards of directors. The results implied that MFIs have complied with the NBE's proclamation No. 626/2009, which declares that at least two-thirds of the board of directors' members should be independent and not involved in the company's daily operations. Furthermore, the results indicated that board meeting frequency ranges from a minimum of 6 to a maximum of 12, with an average meeting of nine (9.133) times per year, which is higher than the minimum of four meetings recommended by the NBE. The results again revealed that, on average, female directors make up 20.8% of the board of sampled MFIs in Ethiopia, with a range of zero to 42.90%. This suggests that in the sampled MFIs, females are underrepresented on the corporate boards.

The descriptive results also indicated that, the average debt ratio of Ethiopian MFIs in the sample was 63.40%, with a minimum and maximum value of 9.50% and 96.90%, respectively. The mean debt ratio of 63.40% implies that the sector finances an estimated 63.40% of its assets with debt. Moreover, the results show that the proportion of net income paid as dividends by Ethiopian MFIs in the sample ranged from 0.000% to 100%, with a mean value of 25.40%. The mean value of 0.254 for the dividend payout ratio suggests that, on average, sampled MFIs in Ethiopia distribute 25.40% of their net income to shareholders in the form of cash dividends. However, there is a considerable variation in the dividend payout ratio across the sampled MFIs over the year, as shown by the standard deviation of 26.40%. Once more, the results revealed that the sampled MFIs have an average CAR of 35.2%, with a minimum and maximum ratio of -48.50% and 89.30%, respectively. The mean capital adequacy ratio of 35.2% implies that MFIs in Ethiopia keep a larger buffer than what the Basel Accord III (10.5%) and the NBE (12%) recommended. However, there is a significant variation in the CAR across the sampled MFIs over the year, as shown by the standard deviation of 16.80%.

15.2. Regression Results and Discussions

This section presents the findings of a multiple regression analysis to investigate the relationship between corporate governance mechanisms and firm performance. Therefore, the main findings are analyzed based on the objectives and hypotheses of the research. Table 1 presents the fixed-effects regression model results for Models 1 (ROA) and 2 (ROE).

15.2.1. Results and discussions of corporate board structures and firm performance

15.2.1.1. Board size and firm performance

Objective 1: To examine the impact of corporate board structures on MFIs' financial performance.

Hn_1: There is no significant association between corporate board size and MFIs' performance.

Ha_1: There is a significant positive association between corporate board size and MFIs' performance.

The fixed-effects regression results, as expected, show that the size of the board has a statistically significant positive association with the performance of MFIs, as measured by ROA and ROE (Z-value = 0.000 < 1% for both Model 1 and Model 2). The statistically significant positive regression coefficients imply that an increase in board size is linked with an increase in firm performance. Accordingly, the null hypothesis is rejected. More specifically, holding all other variables the same, the results show a coefficient of ($\beta 2 = 0.032$ for model 1 and $\beta 2 = 0.067$ for model 2). This means that for each one-unit increase in board size, ROA and ROE would go up by 0.032 and 0.067 units, respectively.

The findings support the view that a larger board will improve a firm's performance because it accommodates a variety of professionals with a variety of experiences and backgrounds to participate in informed decisions, and it is harder for a powerful manager to monitor, thus improving firm performance (Zelalem et al., 2022). The results of this research corroborate the findings of (Al-Matari, 2019; Choi et al., 2021; Goel & Sharma, 2020; Murtaza et al., 2021; Napitupulu et al., 2020; Nguyen & Huynh, 2023; Pucheta-Martínez & Gallego-Álvarez, 2020; Tjahjadi et al., 2021; Zelalem et al., 2022).

Moreover, the results are consistent with the theoretical lenses of resource dependency theory. The theory focuses primarily on the board's role in providing the organization with the necessary resources and dealing with the firm's environment (Pfeffer, 1972). In this regard, resource dependency theorists believe that a firm's ability to outperform is based on its possession of resources that are costly or difficult to acquire for competitors (Fulgence, 2021), and organizations work hard to decline the unpredictable impacts of outside factors to guarantee that resources are accessible for their success and survival (Goel & Sharma, 2020). Similarly, Abou-

El-Sood (2018) argued that boards connect the company with other organizations, enabling access to information expertise, the backing of significant groups, and the establishment of the company's legitimacy. Besides, the theory claim that corporations with large boards are better for their performance since they have a wider spectrum of know-how that helps them make better decisions and is associated with sufficient capacity to govern and access valuable external resources (Goel & Sharma, 2020; Kiel & Nicholson, 2003). Therefore, the theory promotes the appointment of sizable and diversified boards to include individuals from different backgrounds and experiences (Altuwaijri & Kalyanaraman, 2016; Rutledge et al., 2016). This, in turn, improved the firm's performance, which is consistent with the current research findings.

Again, the study found that the sampled MFIs in Ethiopia had an average board size of seven, confirming the view that an optimum number of board sizes proposed by agency theorists ranged from seven to eight (Jensen, 1993) and is limited to ten directors being the maximum (Lipton & Lorsch, 1992). This is because optimal board members can effectively communicate with one another and work well together to achieve the best interests of shareholders. In this regard, agency theorists contend that an optimum number of board of directors provides a reasonable foundation for balancing the interests of managers and shareholders (Arora & Bodhanwala, 2018), enabling strong monitoring that minimizes conflicts among stakeholders (Doku et al., 2023). This, in turn, minimizes agency costs and protects shareholder interests, ultimately leading to improved firm performance (Banik & Chatterjee, 2021; Jensen & Meckling, 1976).

However, it is important to note that having too many directors makes it more challenging to reach an agreement and makes meaningful discussions of important topics less effective, resulting in free-rider problems between directors in their managerial supervision and thereby negatively affecting firm performance (Berhe, 2023; Gohar & Batool, 2015; Guney et al., 2020; Jensen, 1993; Pavić Kramarić et al., 2018; Shan & Xu, 2012). Accordingly, MFIs operating in Ethiopia should keep their optimum board-size positions (about seven), as recommended by Jensen (1993) and Lipton and Lorsch (1992), since it can help improve their performance. This is because the optimum board size can effectively monitor the behavior of the agents and utilize their time and other resources to govern firm performance (Pucheta-Martínez & Gallego-Álvarez, 2020). Once again, the hypothesis that the size of the board of directors significantly and positively impacts the performance of MFIs in Ethiopia is therefore accepted.

15.2.1.2. Board independence and firm performance

Objective 1: To examine the impact of corporate board structures on MFIs' financial performance.

Hn_2: There is no significant association between board independence and MFIs' performance.

Ha_2: There is a significant positive association between board independence and MFIs' performance.

The regression results provide mixed evidence regarding the impact of board independence on firm performance. As in Model 1 (ROA) and Model 2 (ROE) fixed-effects regression, board independence has a positive and statistically significant relationship with MFI performance, as measured by ROA, while it has a statistically insignificant negative effect if ROE is used as a measure of MFI performance. The statistically insignificant negative correlation result is consistent with the findings of Pamburai et al. (2015), Borlea et al. (2017), Riyadh et al. (2019), and Murtaza et al. (2021). Again, the finding is supported by stewardship theory in the view that the distinction between insider and outsider directors is meaningless; what matters is the organizational arrangements that enable and give executives and directors more power than those that monitor and regulate. In this regard, contrary to expectation, independent directors in the boardroom are ineffective in the context of Ethiopian MFI, as the results found that board independence has no statistically significant correlation with MFI performance (ROE). Hence, in this position the null hypothesis is accepted.

On the other hand, as in Model 1, fixed-effects regression results, as expected, there is a significant positive link between board independence and MFI performance, as measured by ROA (Z-value = 0.003 < 1%). Hence, in this position the null hypothesis is rejected. This suggests that the higher the proportion of outside directors serving on MFIs' boards, the better the performance. Specifically, the results exhibit a coefficient of ($\beta 2 = 0.363$ for model 1), indicating that for every one-unit increase in independent director, there's a corresponding increase of 0.363 units in Ethiopian MFI performance (ROA). The results are consistent with the findings of Arora and Bodhanwala (2018), Pucheta-Martínez and Gallego-Álvarez (2020), Shu and Chiang (2020), Choi et al. (2021), and Berhe (2023). This finding implies that independent directors exhibit a considerable firm performance enhancement because they perform as per the interests of stakeholders and see the realization of the established objectives (Pucheta-Martínez & Gallego-Álvarez, 2020).

Furthermore, the findings are corroborated by theoretical perspectives on agency and resource dependency theory. According to agency theory, outside directors are supposed to be independent of the company's management, allowing them to perform their duties more efficiently (Napitupulu et al., 2020), and are viewed as a way to improve board effectiveness through checks and balances, thereby resulting in minimized agency costs and enhanced firm performance (Fama, 1980; Jensen & Meckling, 1976). Overall, this theory argued that having a substantial portion of outside directors on the board of the company results in the development of monitoring mechanisms to successfully minimize conflicts of interest among various business stakeholders and, in turn, enhance shareholders' wealth and firm performance (Banik & Chatterjee, 2021).

Conversely, resource dependency theory mainly emphasizes the board's function in bridging the business and the vital external resources necessary to function well, boosting the firm's performance (Pucheta-Martínez & Gallego-Álvarez, 2020). The underlying assumption of this theory is that companies rely on outside resources, which could potentially lead to external entities having influence over the decisions and operations of the company. In this regard, proponents of this theory advocate that independent directors constitute a sizable portion of the company's board because they can connect a company with other companies and industries and share best practices, which is something a company requires to enhance performance (Kiptoo et al., 2021).

Furthermore, the results of descriptive statistics indicate that, on average, board independence makes up the majority (77.70%) of MFI boards of directors in Ethiopia. Specifically, this confirms the theoretical lenses of agency and resource dependency theory in the context of Ethiopia, indicating that the independence of the board enhances firm performance if ROA is used as a performance measure. This may be due to the requirements of NBE Proclamation No. 626/2009 that at least two-thirds (majority) of the board of directors should be independent. This implies that MFIs in Ethiopia can improve their performance (ROA) by increasing the number of independent directors in their boardrooms.

15.2.1.3. Board meeting frequency and firm performance

Objective 1: To examine the impact of corporate board structures on MFIs' performance.

Hn_3: There is no significant association between board meeting frequency and MFIs' performance.

Ha_3: There is a significant positive association between board meeting frequency and MFIs' performance.

The board meeting is a forum for board members to discuss critical issues and matters to make crucial decisions for the firm's advancement and growth (Eluyela et al., 2018). Contrary to expectations, the regression results indicate that the frequency of board meetings has a statistically significant negative correlation with MFI performance, as measured by ROA and ROE (Z-value = 0.000 < 1% for both Model 1 and Model 2). More precisely, all else equal, the result implies that the signs of the coefficient ($\beta 3 = -0.021$ for Model 1 and $\beta 3 = -0.071$ for Model 2) exhibit that a unit increase in board meeting frequency will induce 0.021 units and 0.071 units decline in the ROA and ROE, respectively. Hence, the null hypothesis is rejected.

The findings of this research corroborate the results of Vafeas (1999), Bathula (2008), Kyereboah-Coleman (2008), Pamburai et al. (2015), and Hanh et al. (2018), who widely believed that holding board meetings more frequently increased the possibility of information overload, compromised resources, and reduced decision-making efficiency, and thereby this can adversely affect firm performance. Again, the findings are in agreement with the view that more frequent board meetings do not enhance shareholder protection because directors are only able to devote a limited amount of time to performing their roles (Lipton & Lorsch, 1992) and perform an excessive number of pointless regular tasks during board meetings in order to comply with corporate policies, which reduces the effectiveness of board responsibilities (Jensen, 1993). The results also confirm the findings of Vafeas (1999), who argued that frequent board meetings are not always advantageous because most of the limited time that external directors spend together is not meaningfully exchanging ideas among themselves or with management; rather, a large portion of the meeting time is devoted to routine activities. This limits the opportunities for outside directors to exercise significant control over executives; as a result, boards would be comparatively inactive (Jensen, 1993). Ultimately, these factors can contribute to reduced board effectiveness and adversely affect firm performance.

However, the regression results of this research contradict the theoretical views of agency theory, which suggest that more frequent board meetings allow directors to analyze and advance executive management performance and existing initiatives (Vafeas, 1999) and have a greater capacity to properly monitor and advise executive officers (Ntim & Osei, 2011), ultimately leading to improved firm performance. Similarly, the findings do not support the view that frequent board meetings may allow board members sufficient time to discuss critical issues that require attention (Jensen, 1993). This implies that frequent board meetings may not necessarily control executives' ability to resolve conflicts of interest among business stakeholders and behave in the best interests of shareholders. The results also do not support the underlying premise of stewardship theory, in that the number of board meetings is meaningless because both the steward and the owners' interests are organizationally centered; there is no need for an overseen board (Usman, 2018).

The results of the descriptive statistics again provide evidence that the boards of the selected MFIs meet about nine (9.133) times per year on average, which is higher than the minimum of four board meetings recommended by the National Bank of Ethiopia. Indeed, board meetings have costs, such as managerial time, refreshment, and travel expenses, which can be particularly burdensome for small firms such as Ethiopian MFIs (a mean value of about USD 30,877,000). Furthermore, a high frequency of board meetings can force executives to invest a considerable amount of time in getting ready for board meetings, which includes preparing in-depth reports, presentations, and updates on the company's performance and strategic goals (Ntim, 2009). This preparation can divert time and resources away from day-to-day operations and strategic planning. Ultimately, these factors can result in disrupting the operational efficiency of executives and thereby reducing firm performance.

15.2.1.4. Board gender diversity and firm performance

Objective 1: To examine the impact of corporate board structures on MFIs' financial performance.

Hn_4: There is no significant relationship between corporate board gender diversity and MFIs' performance.

Ha_4: There is a significant positive relationship between corporate board gender diversity and MFIs' performance.

The concern about gender diversity on boards has recently attracted increased attention from many stakeholders, with the introduction of policies to encourage the participation of females on the boards (Seierstad, 2016). The regression results indicate a positive correlation between the gender diversity of board members and MFI performance in Ethiopia. This suggests that having more female directors serve on a MFI's board enhances performance. Indeed, a higher proportion of female directors may indicate that they take their boardroom responsibilities more seriously and use a cooperative decision-making approach that produces sound decisions even in situations where competing interests are present, both of which improve corporate governance and performance. Again, Adams and Ferreira (2009) found that boards with a higher percentage of female directors put more effort into monitoring functions, and female directors have better attendance records than their male counterparts.

However, it is important to note that the performance of MFIs in this research is not significantly impacted by the higher proportion of females on the board of directors. This might be because the female board members, who don't belong to the traditional "old boys club," have chosen to assimilate into the old-style circles by hiding any unique characteristics resulting from the board members' non-traditional background. The findings of the current research are corroborated by the study of Gohar and Batool (2015), Sanan (2016), and Simionescu et al. (2021), who showed that there is no statistically significant association between board gender diversity and firm performance.

The current research findings do not support the theoretical perspectives of agency and resource dependency theory. On the one hand, proponents of agency theory believe that greater gender diversity can minimize possible agency costs, ensure that stakeholders' best interests are satisfied, and enhance a company's performance (Reguera-Alvarado et al., 2017). On the other hand, resource dependency theorists believe that having a female on the board of directors promotes the legitimacy and favorable image of the company, increases access to financial capital, and can lead to better strategic decisions (Kılıç, 2016; Nielsen & Huse, 2010; Reguera-Alvarado et al., 2017). Moreover, Julizaerma and Sori (2012) demonstrate that having more women on the board of directors brings new ideas, improves communication, and allows for more extended discussions during board meetings, enhancing firm performance.

Again, the results of the descriptive statistics revealed that, on average, female directors make up 20.80% of the board of sampled MFIs in Ethiopia, implying that females are underrepresented on the corporate boards. More importantly, this may be since the NBE does not mandate specific board of directors' gender compositions. Accordingly, the presence of female directors is not effective in the context of Ethiopian MFIs, as the regression results found that board gender diversity has no statistically significant relationship with the performance of MFIs. Accordingly, the null hypothesis is accepted.

15.2.2. Results and discussion of capital structure and firm performance

15.2.2.1. Capital structure and firm performance

Objective 2: To investigate the impact of capital structure policy on MFIs' financial performance.

Hn_5: There is no significant association between the debt ratio and MFIs' performance.

Ha_5: There is a significant positive association between the debt ratio and MFIs' performance.

According to the regression results, contrary to expectation, debt ratio has a statistically significant negative association with firm performance, as measured by ROA and ROE (Z-value = 0.003 < 1% for Model 1 and Z-value = 0.000 < 1% for Model 2). Specifically, all else equal, the results suggest that the signs of the coefficients ($\beta5$ = -0.140 for Model 1 and $\beta5$ = -0.522 for Model 2) exhibit that for a unit increase in the debt ratio, there's a corresponding decline of 0.140 units and 0.522 units in the ROA and ROE, respectively. Accordingly, the null hypothesis is rejected. This implies that the higher the debt ratio, the lower the performance of the firm.

The results are corroborated by the findings of (Abor, 2007; Ahmed & Afza, 2019; Al-Najjar, 2011; Chadha & Sharma, 2015; Kasasbeh, 2021; Mao & Gu, 2008; Sheikh & Wang, 2013; Wassie, 2020). More importantly, in the context of Ethiopia, Wassie (2020) investigates the impact of capital structure on the performance of construction companies. The author, consistent with the current research, found that capital structure as measured by debt ratio has a statistically significant negative link with performance (ROA and ROE). Again, the regression results are consistent with agency theory perspectives. In this position, this theory argues that excessive debt can create a conflict of interest among business stakeholders' groups such as managers, creditors, and shareholders, result in high agency costs, and ultimately harm firm value and

performance (Jensen & Meckling, 1976). Similarly, the findings are consistent with the theoretical predictions of pecking order theory which argues that more profitable firms tend to have lower leverage and prefer using internal sources of finance over external financing.

However, the research findings do not support the underlying notion of agency theory in that debt financing serves as an external governance tool because it creates obligations that force managers to prioritize creditors' interests and maintain financial discipline, thereby mitigating agency problems (Jensen & Meckling, 1976). Ultimately, these factors play an important role in enhancing firm performance. By and large, the negative correlation between debt ratio and firm performance suggests that agency issues may lead firms to use more debt than the optimum level. This excessive leverage can increase the influence of lenders, which might restrict managers' ability to manage operations effectively and thereby negatively affect the performance of the firm. More importantly, financial institutions generate a significant portion of their income through interest earned on loans. The amount of customer deposits they hold directly influences this income. In this case, a low ratio of total deposits to total loans indicates that financial institutions such as MFIs may not have adequate liquidity to meet unforeseen funding needs.

In the Ethiopian context, despite the significant efforts by MFIs to mobilize deposits, their deposit-to-loan ratio is low, which in turn negatively affects their performance (Morka & Wamatu, 2020). According to the AEMFI (2022), for example, by the years 2020 and 2021, MFI in Ethiopia, on average, only mobilized 67% and 61% of loan funds through customer deposits, respectively, which might further strengthen the findings of this research.

15.2.3. Results and discussion of dividend payout and firm performance

15.2.3.1. Dividend payout ratio and firm performance

Objective 3: To analyze the impact of the dividend payout policy on MFIs' financial performance.

Hn_6: There is no significant association between the dividend ratio and MFIs' performance.

Ha_6: There is a significant positive association between the dividend ratio and MFIs' performance.

The regression results provide mixed findings regarding the impact of dividend ratio on firm performance. On the one hand, the regression results, as shown in Model 1 (ROA), demonstrate that the dividend ratio has a statistically insignificant positive correlation with firm performance,

as measured by ROA. Thus, in this position the null hypothesis is accepted. This implies that firms are free to decide on any dividend payout pattern without influencing their value and performance. The findings are consistent with the studies of (Black & Scholes, 1974; Jose & Stevens, 1989; Miller & Scholes, 1982; Priya & Nimalathasan, 2013; Sahu, 2000).

However, as in Model 2, the regression results show, as expected, that there is a significant positive link between the dividend payout ratio and MFI performance, as measured by ROE (Z-value = 0.046 < 5%); the higher the dividend payout ratio, the better the performance. Hence, in this position the null hypothesis is rejected. More specifically, all else being constant, the results show a coefficient of ($\beta 6 = 0.087$ for model 2), indicating that for every one-unit increase in the dividend payout ratio, there's a corresponding increase of 0.087 units in ROE. The findings are corroborated by the conclusions of (Bossman et al., 2022; Farrukh et al., 2017; Kamran et al., 2019; Nissim & Ziv, 2001; Rajverma et al., 2019).

Furthermore, the results are consistent with the theoretical views of signaling, agency, and bird-in-the-hand theory. According to signaling theory, a higher dividend payment typically provides information regarding the company to the market and looks much more attractive to investors because dividend payments act as an indicator to investors and shareholders about the firm's future profitability (Bossman et al., 2022). As a result, many potential investors are likely to be attracted to buy the firm's stock, which can drive up the stock price and thereby increase the company's value. Similarly, a higher dividend payment increases the firm's goodwill in the minds of its customers, leading to an expansion of the firm's customer base. In the end, these factors align with the management's outlook for the firm's future profitability prospects and enhance the firm's performance (Rajverma et al., 2019).

On the other hand, agency theory posits that dividend payments remove free cash flow from the firm and mitigate agency problems of free cash flows (Gul, 1999). The theory also argues that consistent dividends can serve as an instrument to align the interests of principals and agents, signaling financial discipline and shareholder value maximization (Crutchley & Hansen, 1989). Overall, dividend payments are important in minimizing agency costs and, in turn, can increase shareholders' wealth and firm performance. Again, the bird-in-the-hand theory argues that firms may choose to distribute a sizable amount of their earnings as dividends because dividends are

theoretically less risky than uncertain capital gains and, in turn, increase the share price (Robinson, 2005). Specifically, this theory argues that shareholders prefer dividends over capital gains because the former provides a guaranteed payout, while the latter is based on potential future share price increases. In contrast, Miller and Modigliani (1961) pointed out that focusing too much on paying dividends today may not inevitably be the best way to increase a firm's value. According to the authors, paying more in dividends today might result in a lower share price by the same amount.

Accordingly, firms aim to maximize value and performance by maintaining the optimal dividend payout level, which balances the costs and benefits of distributing the last money in dividends (Fama & French, 2002). However, the issue of what constitutes the optimal dividend payout level is not theoretically specified. As a result, firms seek an optimal dividend payout level by carefully examining and balancing the costs and benefits of making dividend payments and capital gains. Precisely, in the context of Ethiopia, the results suggesting that the dividend payout ratio significantly impacts firm performance if ROE is used as a performance measure. This may be due to the fact that Ethiopia does not have a regulatory policy mandating specific dividend payments, allowing MFIs the flexibility to set their own dividend payout levels. This means that Ethiopian MFIs can improve the wealth and performance (ROE) of their shareholders by carefully looking at their specific situations, such as their access to capital, growth prospects, regulatory background, and shareholder expectations, in order to find the best dividend payout ratio.

15.2.4. Results and discussion of capital adequacy requirement and firm performance

15.2.4.1. Capital adequacy ratio and firm performance

Objective 4: To study the impact of the capital adequacy ratio on MFIs' financial performance.

Hn_7: There is no significant association between the CAR and MFIs' performance.

Ha_7: There is a significant positive association between the CAR and MFIs' performance.

Based on the regression results, the variable CAR shows a positive, as-expected, and statistically significant relationship with the MFI performance, as measured by ROA and ROE (Z-value = 0.000 < 1% for Model 1 and Z-value = 0.004 < 1% for Model 2). This indicates that MFIs with higher CAR outperform their competitors with lower CAR. Accordingly, the null hypothesis is

rejected. More importantly, all else being constant, the results exhibit that the signs of the coefficient ($\beta 7 = 0.145$ for Model 1 and $\beta 7 = 0.154$ for Model 2) revealed that a unit increase in the capital adequacy ratio would result in 0.145 units and 0.154 units increase in the ROA and ROE, respectively. The findings are consistent with the findings of (Aliyu et al., 2020; Atuahene et al., 2021; Kipruto et al., 2017; Li et al., 2016; Nyawira et al., 2017; Ofoeda et al., 2016; Ozkan et al., 2014; Sang, 2021; Shah & Dutta, 2013; Vyas et al., 2008).

The results also corroborate the capital buffer theoretical perspective. The theory stipulates that financial institutions should constantly attempt to maintain a level of excess capital to reduce the risks of falling below the minimum capital requirements imposed by regulatory authorities and thus enhance their performance (Aliyu et al., 2020). Similarly, Short (1978) documented that the higher the CAR, ceteris paribus, the greater its protection against unforeseen losses that would render it insolvent, ensures the continued confidence of depositors, and the better capital serves it as a source of funds. Ultimately, these factors in turn improved the performance of the firm, which is consistent with the findings of the current research.

Furthermore, the study found that, on average, MFIs in Ethiopia maintain capital adequacy ratios that are 35.20% higher than those set by the NBE (12%) and the Basel Accord III (10.5%), confirming research findings that support the view that in countries with weak regulatory frameworks and more volatile environments such as Ethiopia, financial institutions must keep buffer capital (Aliyu et al., 2020; OcheiA., 2013). Again, buffer capital helps to improve an MFI's capability for bearing any risk (Li et al., 2016) and enhances its operational efficiency and competitiveness (Indriani et al., 2020), thereby improving firm performance. However, it is important to note that having a capital adequacy ratio that is too high makes financial institutions inefficient in utilizing their current capital sources (Sang, 2021), made it more difficult to obtain funding from outside sources and diversify their asset portfolios, which would limit their overall development (Abbas et al., 2021). Similarly, greater capital requirements may make it harder for financial institutions to benefit from loans, which would have a negative impact on their performance (Alajmi & Alqasem, 2015; Indriani et al., 2020; Li et al., 2016; Mamun et al., 2022; OcheiA., 2013; Ogunode et al., 2022).

Accordingly, financial institutions strive to determine the optimal CAR. In this regard, the capital buffer theory stated that a financial institution's risk and capital sufficiency level appear to be in a trade-off. Mamun et al. (2022) typically argued that forcing financial institutions to hold more capital would jeopardize their performance. The absence of adequate capital, conversely, makes it difficult for financial institutions to absorb losses, resulting in a loss of public confidence, which may cause operational disruption and negatively impact their performance (Ogunode et al., 2022). However, the question of what constitutes an optimum capital adequacy requirement is not theoretically specified. Upon review, the concept of what constitutes an optimum capital adequacy requirement has been carefully examined by concerned bodies to ensure financial institutions operate within safe and sound parameters (Hogan & Sharpe, 1990; Velliscig et al., 2023). As a result, the operations and importance of capital adequacy measures of Ethiopian MFIs are then thoroughly examined by regulatory agencies, and assessments of risk connected to various types of assets have been established and incorporated into the capital-to-assets ratio (Hogan & Sharpe, 1990) to boost their performance.

Table 1: Summary of the research hypotheses and the findings

Item	Null Hypotheses	ROA	ROE
Hn_1	There is no significant association between corporate board size and MFIs' performance.	Rejected	Rejected
Hn_2	There is no significant association between board independence and MFIs' performance.	Rejected	Accepted
Hn_3	There is no significant association between board meeting frequency and MFIs' performance.	Rejected	Rejected
Hn_4	There is no significant association between board gender diversity and MFIs' performance.	Accepted	Accepted
Hn_5	There is no significant association between the debt ratio and MFIs' performance.	Rejected	Rejected
Hn_6	There is no significant association between the dividend ratio and MFIs' performance.	Accepted	Rejected
Hn_7	There is no significant association between the capital adequacy ratio and MFIs' performance.	Rejected	Rejected

Source: Research findings

Table 2: Fixed-effects regression results

Model 1 (ROA)			Model 2 (ROE)		
ROA	**Coefficient**	**P>[t]**	**ROE**	**Coefficient**	**P>[t]**
BSIZE	0.032	(0.000) *	BSIZE	0.067	(0.000) *
BIND	0.363	(0.003) *	BIND	-0.154	0.543
BMEET	-0.021	(0.000) *	BMEET	-0.071	(0.000) *
BGDIV	0.020	0.760	BGDIV	0.060	0.667
DEBR	-0.140	(0.003) *	DEBR	-0.522	(0.000) *
DIVIR	0.005	0.817	DIVIR	0.087	(0.046) **
CAR	0.145	(0.000) *	CAR	0.154	(0.004) *
FSIZE	-0.006	0.895	FSIZE	-0.751	(0.000) *
FAGE	-0.649	(0.000) *	FAGE	-0.985	(0.000) *
FGROW	-0.015	0.496	FGROW	-0.044	0.319
_CONS	0.115	0.405	_CONS	1.519	0.000
Observations		240	Observations		240
Groups		10	Groups		10
R-squared (within)		0.7021	R-squared (within)		0.6471
F-value		48.56	F-value		37.78
Prob > F		0.000	Prob > F		0.0000

Source: the author

Notes: * 1 percent significant level, ** 5 percent significant level

16. Implications of the research findings and recommendations

The findings of this research have several theoretical and practical implications. By and large, a single set of corporate governance arrangements might not be appropriate for every country. This is mainly due to differences in how corporate governance is organized between countries based on their political, economic, legal, and institutional settings. This shows evidence that "one size does not fit all" when it comes to corporate governance arrangements. A theoretical explanation of corporate governance in certain business contexts might not be necessarily applicable in other business contexts. Related to this point, the current research is theoretically grounded by multiple theoretical frameworks since it can provide a more holistic insight into corporate governance practices rather than relying just on a single theoretical framework. This suggests that, within the

context of Ethiopia, the regression findings provide unquestionable justification for the applicability of the theoretical settings pertaining to the issue of interest. In this regard, it is worthwhile to argue that the findings may have considerable theoretical implications for developing country contexts such as Ethiopia.

At a practical level, the findings of this research have important implications for regulators, policymakers, investors, and boards that call for necessary reforms to the corporate governance framework in Ethiopia. The findings indicated that board size has a positive and significant impact on the performance of MFIs. The average board size of about seven in this research implies that MFIs in Ethiopia maintained the optimum board size recommended by agency theorists of Jensen (1993) and Lipton and Lorsch (1992). This seems to imply that the optimum board size likely ensures effective monitoring and provide a wider spectrum of know-how for better decisions, which is more applicable in the context of Ethiopian MFIs. Therefore, this research suggests that MFIs operating in Ethiopia should keep their average board-size positions, precisely seven to nine, since it can help improve their performance.

Moreover, the findings provide mixed evidence regarding board independence. The findings evidenced, as expected, that the presence of highly independent directors improves the performance of MFIs, as measured by ROA, which is consistent with the recommendations of agency and resource dependence theoretical predictions and the NBE. This position of the finding suggests that having independent directors is viewed as a good governance practice since they can improve the board's effectiveness by providing greater objectivity and independent checks and balances, which subsequently improve the firm's performance. Accordingly, from the regression results of board size and independence in this position, the research recommends that the number of independent directors should be kept to a maximum as the number of board members increases.

In addition, the results showed that board meeting frequency is generally associated with lower firm performance. Although more frequent board meetings are perceived as enhancing monitoring, advice, and executive discipline, leading to better firm performance, this might not always be applicable in the context of Ethiopia. This implies that boards may not use their limited time effectively for critical discussions and decisions, as much of it is devoted on

management reports and formalities, resulting in the limited time available to outside directors being wasted without a meaningful discussion. Hence, the research recommends that MFI should hold relatively fewer board meetings to ensure the boards' functions of advice and oversight, thereby boosting their performance.

Besides, even though having more female directors on the board can promote the legitimacy and favorable image of the firm and use a cooperative decision-making approach to improve board effectiveness and subsequently enhance firm performance, it does not significantly affect the performance of MFIs in Ethiopia. It is empirically less surprising given the small number of female directors and their appointments may be made more as a token or for symbolic reasons than for their contribution to the boardroom decision-making. This does not support the current thinking and discussion on promoting gender-balanced representation on boards worldwide. This seems to suggest that a regulatory step may be required to significantly increase the representation of female directors on boards by enacting policies such as quotas. In this regard, the NBE, AEMFI, and other stakeholders may facilitate establishing an enabling environment through regular training and development programs to encourage gender-diverse board members and better educate them about their rights and obligations.

The findings also show that the debt ratio has a statistically significant negative association with firm performance (ROA and ROE). This finding implies that agency issues could cause firms to use more debt than is the optimum level and could result in them forego profitable investment opportunities. This underinvestment suggests that firms having a growth opportunity may exhibit a negative correlation between their debt ratio and performance. In this regard, the research suggests that Ethiopian MFIs should try to minimize their debt levels and rely more on internal financing sources like retained earnings to finance their investments.

Furthermore, the findings provide mixed evidence when it comes to the dividend payout ratio. The significant positive impact of the dividend payout ratio on firm performance as measured by ROE is consistent with the recommendation of agency and signaling theory. This position implies that dividends could be used as a substitute governance tool in aligning managers' goals with shareholders by reducing the free cash available especially in countries with weak shareholder protection, such as Ethiopia. As a result, the research recommends that firms

maintain a stable dividend policy since a firm that pays stable dividends can increase shareholders' wealth and performance. The mixed evidence may be because Ethiopia does not have a regulatory policy mandating specific dividend payments, allowing MFIs the flexibility to set their own dividend payout levels.

Again, the findings indicate that the capital adequacy ratio has a positive and statistically significant impact on firm performance (ROA and ROE). The findings are consistent with the recommendations of the NBE and buffer theory, which encourage financial institutions to maintain excess capital. This suggests that having a buffer capital is more effective in enhancing firm performance when weak regulatory frameworks and more volatile business environments such as Ethiopia exist. In this context, according to Directive No. MFI/27/2015, in Ethiopia, MFI applying for a license shall have a minimum paid-up capital of birr 10,000,000 (192,500 USD), which is low. Therefore, this research recommends that the regulators and policymakers raise the minimum paid-up capital to establish a new MFI so that the newly established MFI can operate and compete successfully with the existing or new MFI, strengthening the quality of their capital position (core capital, Tier 1).

By and large, given the overall importance of corporate governance arrangements in the performance of MFI, the findings of this research enable policymakers, shareholders, boards, and executives to critically scrutinize significant corporate governance variables affecting MFI performance and take corrective actions accordingly. This recommendation suggests that boards, managers, shareholders, and policymakers should put in place workable policies and regulations to guarantee that firms adopt appropriate corporate governance frameworks to improve their performance. Moreover, the current research suggests that regulatory bodies, especially the NBE, should strengthen their policy concerning the structures of corporate governance by paying particular attention to the influential variables under this research to improve the Ethiopian MFIs' performance. Once more, the mixed evidence generally implies that the choice of performance measure and firm-specific factors such as firm size, fir age and firm growth has significant implications for understanding the impact of corporate governance structures on firm performance.

17. Limitations of the Research

While the research findings are important, the research may be subject to potential limitations that should be acknowledged. The current research considers only Ethiopian MFI, excluding other financial and non-financial sectors; accordingly, the findings can be generalized to the Ethiopian MFIs. Besides, although the research examines board structures, corporate financial policies, and capital adequacy requirements, other corporate governance variables such as ownership structure, audit committee characteristics, and director remuneration and educational background might also impact firm performance.

Again, to fully understand the relationship between corporate governance and firm performance, it is important to use a broader set of performance proxies, incorporating both accounting-based and market-based indicators. However, the current research used only accounting-based performance indicators of ROE and ROA since market-based performance indicators are difficult in Ethiopia due to the absence of a capital market. Despite the research having these limitations, the researcher has not compromised on the quality and soundness of the study.

18. Avenues for Future Research

Despite the contribution, the findings of the study exhibit some limitations that could be the motives for future research. The study suggests that future studies consider data from different industries such as banking, insurance, higher taxpayers, and other non-financial sectors to shed light on their comparability and provide more holistic evidence across different sectors. Besides, the study is limited to board structures, corporate financial policies, and capital adequacy requirements governance variables. Therefore, the study suggests that other corporate governance variables that may affect firm performance, such as ownership structure, audit committee characteristics, director remuneration and educational background, and legal frameworks to be considered in future research for a thorough understanding of corporate governance matters.

Once more, the study used only accounting-based firm performance indicators of ROA and ROE, and thereby, future studies can extend the current research by using other accounting-based (such as net profit margin) and market-based firm performance indicators such as Tobin's Q for a more holistic assessment of how corporate governance practices influence a firm's performance.

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Appendixes

Appendix I
Research Questionnaire

Dear Sir/Madam

Thank you for participating in this study. The purpose of the questionnaire is to collect data regarding impact of corporate governance on Microfinance Institutions' performance in Ethiopia by Mohammed Adem Bekele, who is a research scholar (PhD Student) at Mangalore University (India). In the study, corporate governance and performance related issues are raised and to collect the necessary data, you are chosen to be part of this study. Your cooperation in providing genuine response to the following questions is highly important for the success of this study. All information given will be used for the purpose of this research only and your response will be kept confidentially. Once again, thank you for your cooperation to be part of this study!

For the following questions fill the number only for each period.

No	**Items**	Fiscal year in Gregorian Calendar									
		2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
	Board Structures										
1	The number of directors sitting on the board (Board Size)										
2	Number of directors who have no position in the management or non-executive directors (Board Independent).										
3	How many times has the board met on yearly basis? (Board Meeting Frequency)										
4	The number of Female directors sitting on the board (Board Gender Diversity)										

Organized & Given By: Name & Signature _____ Approve By: Name & Signature _____
Position: _____ Position: _____
Date: _____ Date: _____

Appendix II

A list of MFIs in Ethiopia, along with their year of establishment

S.No.	Names of microfinance institutions	Year of Estab.	Years of operations	Head office (region)
1.	Amhara Credit and Savings Institution S.Co.	1997	24 years	Amhara
2.	Oromia Credit and Saving Institution S.Co.	1997	24 years	Addis Ababa
3.	Omo Micro Finance Institution S.Co.	1997	24 years	SNNP
4.	Addis Credit and Saving Institution S.Co.	1997	24 years	Addis Ababa
5.	Specialized Financial and Promotional Institution S. Co.	1997	24 years	Addis Ababa
6.	Gasha Micro Financing S.Co.	1998	23 years	Addis Ababa
7.	Vision Fund Microfinance Institution S. Co.	1998	23 years	Addis Ababa
8.	Sidama Micro Finance Institution S. Co.	1998	23 years	Addis Ababa
9.	Buusaa Gonofaa Micro Financing S. Co.	1999	22 years	Addis Ababa
10.	Peace Microfinance Institution S. Co.	1999	22 years	Addis Ababa
11.	Meklit Micro Finance Institution S. Co.	2000	21 years	Addis Ababa
12.	Eshet Micro Finance Institution S. Co.	1997	24 years	Addis Ababa
13.	Wasasa Micro Finance Institution S. Co.	1997	24 years	Oromia
14.	Benishangul-Gumuz Micro Finance Institution S. Co.	1997	24 years	Benishangul
15.	Dire Micro Finance Institution S. Co.	2003	18 years	Diredawa
16.	Aggar Micro Finance Institution S. Co.	2004	17 years	Addis Ababa
17.	Harbu Micro Finance Institution S. Co.	2005	16 years	Addis Ababa
18.	Africa Village Financial Services S. Co.	1998	23 years	Addis Ababa
19.	Kendil Micro Finance Institution S. Co.	2001	20 years	Oromia
20.	Metemamen Micro Finance Institution S. Co.	2002	19 years	Addis Ababa
21.	One Micro Finance Institution S. Co.	2004	17 years	Addis Ababa
22.	Degaf Micro Credit Provider S. Co.	2005	16 years	Addis Ababa
23.	Lefayda Credit and Saving Institution S.Co.	2007	14 years	Addis Ababa
24.	Dynamic Micro Finance S. Co.	2009	12 years	Addis Ababa
25.	Dedebit Credit and Savings Institution S.Co.	1997	24 years	Tigray
26.	Adaday Micro Finance Institution S. Co.	2004	17 years	Tigray
27.	Harar Micro Finance Institution S. Co.	2006	15 years	Harer
28.	Gambella Micro Finance Institution S. Co.	2008	13 years	Gambella
29.	Tesfa Micro Finance Institution S. Co.	2008	13 years	Addis Ababa
30.	Somali Micro Finance Institution S. Co.	2012	9 years	Somalia
31.	Lideta Micro Finance Institution S. Co.	2012	9 years	Tigray
32.	Rays Micro Finance Institution S. Co.	2014	7 years	Addis Ababa
33.	Nisir Micro Finance Institution S. Co.	2014	7 years	Addis Ababa
34.	Kershi Microfinance Institution S. Co.	2017	4 years	Addis Ababa
35.	Sheger Microfinance Institution S. Co.	2018	3 years	Addis Ababa
36.	Yemsirach Microfinance Institution S. Co.	2018	3 years	Addis Ababa
37.	Debo Microfinance Institution S. Co.	2018	3 years	Addis Ababa
38.	Grand Microfinance Institution S. Co.	2019	2 years	Addis Ababa
39.	Kaafi Microfinance Institution S. Co.	2019	2 years	Addis Ababa

Source: National Bank of Ethiopia (2020/21).

Note: The microfinance institutions from serial numbers 1 to 24 are included in the sample.

Summary of descriptive statistics

Variable	Observation	Mean	Std. dev	Minimum	Maximum
ROA	240	0.083	0.147	-0.397	0.717
ROE	240	0.247	0.300	-0.684	0.990
BSIZE	240	6.558	1.581	5.000	9.000
BIND	240	0.777	0.105	0.667	1.000
BMEET	240	9.133	2.163	6.000	12.000
BGDIV	240	0.208	0.111	0.000	0.429
DEBR	240	0.634	0.159	0.095	0.969
DIVIR	240	0.254	0.264	0.000	1.000
CAR	240	0.352	0.168	-0.485	0.893
FSIZE	240	1600000000	4460000000	625520	33500000000
FAGE	240	16.250	4.631	3.000	24.000
FGROW	240	0.185	0.266	-0.507	0.696

Source: the author

Multicollinearity test results

Variable	VIF	1/VIF
BIND	5.42	0.1846
BSIZE	4.14	0.2415
CAR	2.88	0.3478
DEBR	2.15	0.4642
FAGE	2.15	0.4650
FSIZE	2.04	0.4894
BMEET	1.74	0.5754
FGROW	1.39	0.7185
BGDIV	1.18	0.8440
DIVIR	1.13	0.8838
Mean VIF	2.42	

Source: the author

Hausman specification tests and R-squared results

Hausman specification test	**Model 1 (ROA)**		**Model 2 (ROE)**	
Hausman test	Chi-sq. Statistics	Prob>Chi2	Chi-sq. Statistics	Prob>Chi2
Hausman test result	78.94	**0.000**	31.43	**0.0005**
R-squared (within)	**0.7021**		**0.6471**	
Conclusion	Fixed-effects model selection			

Source: the author

Fixed-effects regression results (Model 1-ROA)

```
. xtset company year, yearly

Panel variable: company (strongly balanced)
 Time variable: year, 2012 to 2021
         Delta: 1 year

.
. xtreg roa bsize bind bmeet bgdiv debr divir car fsize fage fgrow, fe

Fixed-effects (within) regression               Number of obs      =       240
Group variable: company                         Number of groups   =        24

R-squared:                                      Obs per group:
     Within  = 0.7021                                         min =        10
     Between = 0.3488                                         avg =      10.0
     Overall = 0.4430                                         max =        10

                                                F(10,206)          =     48.56
corr(u_i, Xb) = -0.6693                         Prob > F           =    0.0000

------------------------------------------------------------------------------
         roa | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       bsize |   .0323509   .0078208     4.14   0.000     .0169318    .04777
        bind |   .3634629   .1216571     2.99   0.003     .1236102   .6033156
       bmeet |  -.0210111    .004193    -5.01   0.000    -.0292779   -.0127444
       bgdiv |   .0204862   .0670629     0.31   0.760    -.1117315    .1527038
        debr |  -.1397403   .0464983    -3.01   0.003    -.2314137   -.0480668
       divir |   .0048242   .0208765     0.23   0.817    -.0363348    .0459833
         car |   .1450328   .0251983     5.76   0.000     .0953533    .1947124
       fsize |  -.0057223   .0433567    -0.13   0.895    -.0912021    .0797574
        fage |  -.6494472   .1053661    -6.16   0.000    -.8571813   -.441713
       fgrow |  -.0146197    .021429    -0.68   0.496    -.0568679    .0276285
       _cons |  -.1149779   .1377643    -0.83   0.405    -.3865867    .1566308
-------------+----------------------------------------------------------------
     sigma_u |  .12254153
     sigma_e |  .06890305
         rho |  .75978464   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(23, 206) = 5.87                     Prob > F = 0.0000

. estimate store fe

.  xtreg roa bsize bind bmeet bgdiv debr divir car fsize fage fgrow, re

Random-effects GLS regression                   Number of obs      =       240
Group variable: company                         Number of groups   =        24

R-squared:                                      Obs per group:
     Within  = 0.6602                                         min =        10
     Between = 0.7081                                         avg =      10.0
     Overall = 0.6730                                         max =        10

                                                Wald chi2(10)      =    454.58
corr(u_i, X) = 0 (assumed)                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         roa | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
       bsize |    .016569   .0072714     2.28   0.023     .0023173    .0308206
        bind |   .3562557   .1205503     2.96   0.003     .1199814     .59253
       bmeet |  -.0302759   .0036111    -8.38   0.000    -.0373536   -.0231983
       bgdiv |   .0799524   .0602352     1.33   0.184    -.0381065    .1980113
        debr |  -.0817569   .0483147    -1.69   0.091     -.176452    .0129382
       divir |   .0103423    .021534     0.48   0.631    -.0318635    .0525482
         car |   .0350641   .0117994     2.97   0.003     .0119377    .0581906
       fsize |   .0686408   .0435639     1.58   0.115    -.0167429    .1540245
        fage |    -.19855   .0644368    -3.08   0.002    -.3248438   -.0722562
       fgrow |   .0000705   .0226812     0.00   0.998    -.0443839    .0445249
       _cons |   .0356817   .1111138     0.32   0.748    -.1820974    .2534608
-------------+----------------------------------------------------------------
     sigma_u |  .03028064
     sigma_e |  .06890305
         rho |  .16186943   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. estimate store re

. hausman fe re

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          Std. err.
-------------+----------------------------------------------------------------
       bsize |    .0323509      .016569       .0157819        .0028796
        bind |    .3634629     .3562557       .0072072        .0163729
       bmeet |   -.0210111    -.0302759       .0092648         .002131
       bgdiv |    .0204862     .0799524      -.0594662        .0294814
        debr |   -.1397403    -.0817569      -.0579834               .
       divir |    .0048242     .0103423      -.0055181               .
         car |    .1450328     .0350641       .1099687        .0222649
       fsize |   -.0057223     .0686408      -.0743632               .
        fage |   -.6494472      -.19855      -.4508972        .0833661
       fgrow |   -.0146197     .0000705      -.0146903               .
------------------------------------------------------------------------------
                           b = Consistent under H0 and Ha; obtained from xtreg.
            B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic

    chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
             =  78.94
Prob > chi2 = 0.0000
(V_b-V_B is not positive definite)
```

Fixed-effects regression results (Model 2-ROE)

```
. xtreg roe bsize bind bmeet bgdiv debr divir car fsize fage fgrow, fe

Fixed-effects (within) regression               Number of obs      =       240
Group variable: company                         Number of groups   =        24

R-squared:                                      Obs per group:
     Within  = 0.6471                                         min =        10
     Between = 0.5486                                         avg =      10.0
     Overall = 0.5994                                         max =        10

                                                F(10,206)          =     37.78
corr(u_i, Xb) = -0.1295                         Prob > F           =    0.0000

------------------------------------------------------------------------------
         roe | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       bsize |   .0665622   .0161991     4.11   0.000      .034625    .0984994
        bind |  -.1536546   .2519855    -0.61   0.543    -.6504557    .3431465
       bmeet |  -.0712306   .0086849    -8.20   0.000    -.0883533    -.054108
       bgdiv |   .0597883   .1389058     0.43   0.667    -.2140709    .3336475
        debr |   -.522188   .0963107    -5.42   0.000     -.712069   -.3323069
       divir |    .086723    .043241     2.01   0.046     .0014713    .1719747
         car |   .1538137   .0521925     2.95   0.004     .0509136    .2567137
       fsize |  -.7507466   .0898037    -8.36   0.000    -.9277987   -.5736945
       fage  |  -.9846694   .2182422    -4.51   0.000    -1.414944   -.5543947
       fgrow |  -.0443544   .0443853    -1.00   0.319    -.1318621    .0431533
       _cons |   1.519438   .2853479     5.32   0.000     .9568614    2.082015
-------------+----------------------------------------------------------------
     sigma_u |   .1396498
     sigma_e |  .14271722
         rho |  .48913805   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(23, 206) = 5.59                     Prob > F = 0.0000

. estimate store fe

.  xtreg roe bsize bind bmeet bgdiv debr divir car fsize fage fgrow, re

Random-effects GLS regression                   Number of obs      =       240
Group variable: company                         Number of groups   =        24

R-squared:                                      Obs per group:
     Within  = 0.6408                                         min =        10
     Between = 0.6793                                         avg =      10.0
     Overall = 0.6577                                         max =        10

                                                Wald chi2(10)      =    416.22
corr(u_i, X) = 0 (assumed)                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         roe | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
       bsize |   .0615292   .0147865     4.16   0.000     .0325482    .0905101
        bind |   .0042041   .2395649     0.02   0.986    -.4653345    .4737427
       bmeet |  -.0719228    .007519    -9.57   0.000    -.0866597    -.057186
       bgdiv |   .1600087   .1258674     1.27   0.204    -.0866869    .4067043
        debr |  -.4829941   .0944177    -5.12   0.000    -.6680495   -.2979387
       divir |   .0858972   .0422297     2.03   0.042     .0031284     .168666
         car |   .0973699     .02873     3.39   0.001     .0410601    .1536796
       fsize |  -.7166995   .0848526    -8.45   0.000    -.8830075   -.5503915
       fage  |  -.6686924   .1459189    -4.58   0.000    -.9546881   -.3826968
       fgrow |  -.0404951   .0438394    -0.92   0.356    -.1264186    .0454285
       _cons |   1.296185   .2371002     5.47   0.000      .831477    1.760893
-------------+----------------------------------------------------------------
     sigma_u |  .10367598
     sigma_e |  .14271722
         rho |  .34542977   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. estimate store re

. hausman fe re

                 ---- Coefficients ----
                |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                |       fe           re       Difference          Std. err.
----------------+----------------------------------------------------------------
         bsize  |    .0665622     .0615292        .005033        .0066159
          bind  |   -.1536546     .0042041       -.1578587        .0781366
         bmeet  |   -.0712306    -.0719228        .0006922        .0043466
         bgdiv  |    .0597883     .1600087       -.1002204        .0587555
          debr  |    -.522188    -.4829941       -.0391938        .0190012
         divir  |     .086723     .0858972        .0008258        .0092971
           car  |    .1538137     .0973699        .0564438        .0435735
         fsize  |   -.7507466    -.7166995       -.0340471        .0294065
          fage  |   -.9846694    -.6686924       -.3159769        .1622879
         fgrow  |   -.0443544    -.0404951       -.0038593        .0069401
------------------------------------------------------------------------------
                           b = Consistent under H0 and Ha; obtained from xtreg.
            B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic

    chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
             =  31.43
Prob > chi2 = 0.0005
(V_b-V_B is not positive definite)
```